

CLAIMS

1. A process for the automatic locking from afar of a vehicle (2) equipped with a hands-free access system in which the vehicle is equipped with short-range antennas (4, 6, 8) intended to send a signal to a tag furnished on the one hand with a receiver for receiving the signals sent by the antennas (4, 6, 8) of the vehicle and on the other hand a transmitter of longer range than the transmitting antennas (4, 6, 8) of the vehicle for transmitting signals in response to signals received from the vehicle, characterized in that the locking of the vehicle is instructed when on the one hand the doors of the vehicle to be locked are closed and when on the other hand the vehicle receives from the tag a signal (18, 18') containing a cue indicating that the level of reception by the tag of the signals (10, 10', 22) transmitted by the vehicle (2) is low or zero, at least one signal sent previously by the vehicle having been received with a normal level of reception.

2. The locking process as claimed in claim 1, characterized in that the signals transmitted by the antennas (4, 6, 8) of the vehicle for the implementation of this process are signals of low frequency type, of a frequency of the order of 125 kHz.

3. The locking process as claimed in one of claims 1 or 2, characterized in that the signals transmitted by the tag for the implementation of this process are signals of radio frequency type, of a frequency of the order of 433 MHz.

4. The locking process as claimed in one of claims 1 to 3, characterized in that a timeout is provided between the sending by the tag of the signal (18, 18') containing a cue relating to the low level of reception of the signals originating from the vehicle and the instruction to lock the vehicle.

5. The locking process as claimed in one of claims 1 to 4, characterized in that the tag is furnished with a device allowing it to measure the amplitude of the signal received originating from the vehicle.

6. The locking process as claimed in claim 5, characterized in that each signal (14, 14', 18, 18') transmitted by the tag indicates the amplitude of the last signal received originating from the vehicle.

7. The locking process as claimed in claim 5, characterized in that the tag transmits toward the vehicle a first type of signal (14) in response to a signal transmitted by the vehicle when the amplitude of the signal received is greater than a predetermined threshold and in that the tag transmits toward the vehicle a second type of signal (18') different than the first, in the converse case.

8. The locking process as claimed in claim 7, characterized in that the signal (18) of the second type is not sent when an abrupt variation in the signal amplitude measured is detected.

9. The locking process as claimed in one of claims 5 to 8, characterized in that when the tag receives several signals (10, 20) originating from several

antennas (4, 6, 8) of the vehicle it takes into account the signal whose amplitude is the largest.

10. The locking process as claimed in one of claims 5 to 9, characterized in that the tag transmits an alert in the case where an anomaly is detected in the measurement of the amplitude of the signals received.

11. The locking process as claimed in one of claims 1 to 4, characterized in that the tag periodically sends a first type of signal (14') in response to an interrogation by a signal (10') originating from the vehicle, and in that the tag continues to transmit when it no longer receives the vehicle's interrogations but then sends signals (18') of a second type indicating that it has not received any signal originating from the vehicle since the last signal that it transmitted.

12. The locking process as claimed in one of claims 1 to 11, characterized in that, during the implementation of the locking process at least one antenna transmitting signals in such a way as to substantially cover the entire inside space of the vehicle sends a signal toward the tag, and in that the locking of the vehicle is carried out only if the tag receives the signal originating from an inside antenna.

13. The locking process as claimed in claim 12, characterized in that the transmission of the inside antennas is performed at full power, and in that this transmission is carried out after a predetermined time span subsequent to the closure of all the doors of the vehicle.

14. The locking process as claimed in one of claims 12 or 13, characterized in that the tag transmits a signal containing a cue indicating that the level of reception by the tag of the signals transmitted by the vehicle is low or zero only insofar as it has not responded for a predetermined minimum time to a demand from the inside antennas.